

## FEMA REGION V

---

### *short notes on planning #18*

---

#### **DETERMINING DAMAGE POTENTIAL**

When a community decides to prepare a mitigation plan, their first activity is to put the mitigation team together. The second and third tasks are to complete the hazard identification and risk assessment. Flood maps, geological maps, and maps prepared by federal and state agencies regarding snowfall and other hazards make the hazard assessment relatively easy. Communities may wish to update or improve on this information, but the format is already set. The harder work is when the community starts to compare the hazard maps with maps showing the built environment to complete the risk assessment.

The reason that the risk assessment is harder is that knowing that a structure or facility is in an area susceptible to the affects of a hazard area is only the first step. After determining that a structure or facility is at risk, the community has to determine how bad the potential damage can be expected to get. To determine the actual risk, other data regarding the structure, such as building type, location and elevation of the structure, as well as information about the property, such as soil type and quality must also be obtained. The type of data will depend on the type of hazard that the community is looking at. Different data is needed to determine flood risk than the data needed to determine earthquake risk. The list below gives examples of the best possible data (BPD) and the minimum acceptable data (MAD) for three types of hazards. Always remember that the best possible data should be used if available, and if possible it should be obtained.

#### **Floods**

With floods you are trying to determine how much of the structure will be damaged when the disaster strikes. Therefore damage determination depends on the depth of the water and how high or low the structure sits.

BPD: The Base Flood Elevation at the site and the elevation of the top of the lowest floor, including basement, of the structure

MAD: Approximate depth of flooding on the outside of the structure from the flood of record, information on the foundation type (slab, crawlspace, basement) and the depth of flooding above or below the first floor

## **Earthquakes**

With earthquakes you are trying to determine the potential strength of the earthquake, how far the seismic waves are expected to travel and what their impact on a structure will be. The Seismic maps tell you how strong the earthquake is expected to be and how often it is expected to strike. The soils maps will help an engineer determine how far the seismic waves are expected to travel and will also show how stable the foundations of the structures might be. The building code will indicate what requirements had to be met when the structure was built and this can be compared with current standards to help determine the stability of the structure during an earthquake.

BPD: Current seismic maps for the area, geologic data on the soils, the date and type of construction of each structure affected and the building code in effect at the time of construction.

MAD: Current seismic maps for the area, current building codes, and the approximate date of construction based on a windshield survey.

## **Landslides and Debris Flow**

For landslides you need to look at the types of soils and their known characteristics, the steepness of the hillsides; the effects of other factors such as filling and drainage; the location of structures (the structures can slide down from the top or side of the hill and be buried at the bottom of the hill) and the foundation construction for those structures located on the top or side of the hill.

BPD: Geological maps indicating slide prone areas; drainage information that includes mapping and regulations for filling, re-grading and the drainage of soils; foundation requirements for each structure constructed in a landslide area.

MAD: Maps showing areas that may be slide-prone based on topography and field observations; maps showing the location of structures in slide prone areas along with types of foundations based on field observations.

Similar analysis can be used for other hazards such as wildfire, severe winds and snow loads. Contact your State Emergency Management Agency to determine that factors that should be used in these other risk assessments.

Two important things to remember when determining damage potential are:

1. There are minimum information requirements that must be met to complete many of the activities included in the planning process; and these activities should be your guide to the least effective acceptable option.
2. Each progressive improvement in information leads to a better risk analysis.